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(71)Applicant : DEITSUPUSOOLE KK

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(72)Inventor : OSHIMA KATSUhide  
 TANAKA SHIGEMI

### (54) CLEANING SOLVENT COMPOSITION

(57)Abstract:

PURPOSE: To obtain a new cleaning solvent composition having an excellent detergent effect as a substitute for chlorofluorocarbon and chlorine-containing solvents and another cleaning solvent composition excellent in stability.

CONSTITUTION: The cleaning solvent composition contains n-propyl bromide and/or isopropyl bromide, and another cleaning solvent composition is prepared by mixing this composition with at least one stabilizer selected from the group consisting of a nitroalkane, an ether, an epoxide and an amine.

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CLAIMS

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[Claim(s)]

[Claim 1] n- bromination — a propyl — and/or — iso — bromination — the solvent constituent for washing characterized by containing a propyl

[Claim 2] The solvent constituent for washing containing at least one sort of stabilizers chosen from the group which consists of nitroalkanes, ether, epoxide, and amines according to claim 1.

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## DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001] [Industrial Application] this invention relates to the solvent constituent for washing used as an alternative solvent of chlorofluorocarbon or a chlorine-based solvent.

[0002]

[Description of the Prior Art] Chlorofluorocarbon and the chlorine-based solvent are used extensively until now, and the stabilization technology and the used technology of chlorofluorocarbon or a chlorine-based solvent are developed variously. For example, the technology which adds the stabilizing agent chosen from the group which becomes the azetropic mixture which contains TORIKURO difluoroethane, a hydrocarbon, alcohol, a ketone, the ether, ester, etc. in JP.3-173835A as a stabilization technology from a nitro compound, phenols, amines, ether, amylenes, ester, organic phosphite, epoxide, furans, alcohols, ketones, and triazoles is indicated. However, establishment of the outstanding solvent for washing which the use is restricted from the environmental problem in recent years, and replaces chlorofluorocarbon and a chlorine-based solvent with these, and its stabilization technology is desired. On the other hand, since it was inferior chemical stability and in respect of incombustibility compared with chlorofluorocarbon or a chlorinated hydrocarbon, smell carbonizing hydrogen was not used as a solvent for degreasing washing of various metal parts and plastics.

[0003]

[Problem(s) to be Solved by the Invention] Therefore, this invention aims at offering the new solvent constituent for washing which has the cleaning effect which was excellent as an alternative solvent of chlorofluorocarbon or a chlorine-based solvent. this invention aims at offering the solvent constituent for washing excellent in stability again.

[0004]

[Means for Solving the Problem] this invention persons -- bromination -- the result which examined many things about the hydrocarbon -- n-bromination -- a propyl -- and -- iso -- bromination -- the propyl was fire retardancy, and the solvent power to various oil was very large, and it found out having the outstanding degreasing washing nature. Moreover, although there is a fault that reactivity with a metal especially aluminum, or its alloy is very large and this reaction occurred also in ordinary temperature only with these solvents, when temperature was raised especially for steamy washing, aluminum was also violently corroded by becoming remarkable, reacting to the inside of a short time for 10 - 20 minutes with aluminum, and becoming dark-brown tar or carbide, and the problem that it dissolves completely was found out. However, even if it performed steamy washing, as a result of repeating research variously about the stabilizer which can work to stability for a long period of time, addition of the specific stabilizer acquired knowledge that reactivity with a metal is sharply improvable. this invention was made based on such knowledge, namely, this invention -- n-bromination -- a propyl -- and/or -- iso -- bromination -- the solvent constituent for washing characterized by containing a propyl is offered this invention offers the stable solvent constituent for washing which made at least one sort of stabilizers chosen from the group which becomes this solvent constituent for

washing from nitroalkanes, ether, epoxide, and amines again contain.

[0005] As nitroalkanes used in this invention, kinds, such as a nitromethane, a nitroethane, 1-nitropropane, 2-nitropropane, and a nitrobenzene, or two sorts or more of mixture is raised. Kinds, such as 1, 2-dimethoxyethane, 1, 4-dioxane, diethylether, a diisopropyl ether, the SHIBUCHIRU ether, a trioxane, a methyl cellosolve, ethylcellosolve, an isopropyl cellosolve, an acetal, an acetone dimethyl acetal, gamma-butyrolactone, a methyl tert butyl ether, a tetrahydrofuran, and N-methyl pyrrole, or two sorts or more of mixture is raised as ether. As epoxide, kinds, such as EPIKUROHI drine compounds, a propylene oxide, butylene oxide, a cyclohexene oxide, a glycidyl methyl ether, a glycidyl meta-crate, a pentene oxide, a cyclopentene oxide, and a cyclohexene oxide, or two sorts or more of mixture is raised. As amines, a hexylamine, an octyl amine, a 2-ethylhexyl amine, A dodecyl amine, an ethyl butylamine, a hexyl monomethylamine, a butyl octyl amine, A dibutyl amine, an octadecyl monomethylamine, a triethylamine, tributylamine, A diethyl octyl amine, a tetradecyl dimethylamine, disobutylamine, Diisopropylamine, pentylamine, N-methyl morpholine, an isopropylamine, A cyclohexylamine, a butylamine, an isobutyl amine, a dipropyl amine, A 2, 2, 6-tetramethylpiperidine, N, and N-diaryl-P-phenylenediamine, Kinds, such as a diarylamine, an aniline, ethylenediamine, a propylenediamine, a diethylenetriamine, a tetraethylenepentamine, a benzylamine, dibenzylamine, a diphenylamine, and a diethyl hydroxy amine, or two sorts or more of mixture is raised.

[0006] In this invention, triazoles, such as acetylene series alcohol, such as a stabilizer of a chlorine-based hydrocarbon, amino alcohols, such as phenols, such as a phenol used and O-cresol, a monoethanolamine, a diethanolamine, and a triethanolamine, a methylbutynol, methyl cutting-pliers Norian, and propargyl alcohol, a benzotriazol, a benzotriazol (2-hydroxyphenyl), and a chlorobenzotriazole, can also be used as an auxiliary stabilizer out of the above-mentioned stabilizer. n-bromination -- a propyl -- iso -- bromination -- although the addition of a stabilizer required for stabilization of a propyl and its rate change with service conditions, such as a kind of oil adhering to the quality of the material of a washed object, and the washing method, and it can change over the latius range considerably -- n-bromination -- a propyl -- iso -- bromination -- it is 0.5 - 10 % of the weight preferably [ using it in 0.1 - 15% of the weight of the range to the total weight of a propyl ], and more preferably That is, there is an inclination for a stabilization effect to fall at 0.1% or less, and, on the other hand, it adds 15% or more because it is not economical, although it is effective even if it uses the above-mentioned stabilizer independently, it may be used, using together with two sorts, three sorts, or more than it, and it is total and, as for the addition, what is made into 0.1 - 15% of range is desirable

[0007]

[Effect of the Invention] The solvent constituent for washing of this invention is excellent, and degreasing washing nature can be used for it as alternative \*\*\* of a chlorofluorocarbon chlorine-based solvent. Moreover, without corroding the metal of a washed object by adding a specific stabilizer, it is stabilized for a long period of time, and degreasing washing can be carried out good. Therefore, it can be used very suitable for washing, such as various metalworking articles and electronic parts. An example and the example of comparison explain this invention concretely below.

[0008]

[Example]

The solvent constituent for washing shown in example 1 table -1 was prepared, according to a method given in JIS-K1600, the piece of aluminum (JIS-H -4000, A1100P) has been arranged to each of the liquid phase section of the solvent constituent for washing, and the gaseous-phase section, the corrosion situation of the piece of a metal of 48 hours after was observed, and the following criteria estimated.

corrosion situation error-criterion O Change-less x A Profit \*\*\*\* result with corrosion is shown in Table -1 with the result of the example of comparison. In addition, front Naka and n-propyl star's picture showed nPB and the isopropyl star's picture by IPB, and showed loadings as a weight ratio in ( ).

[0009] Moreover, the degreasing detergency was measured by the following methods.

SPCC mild steel board which carried out degreasing detergency--test \*\*\*\* clarification (50x100x0.3mm) The press oil (tradename Japan metal-working-fluid #640) was used as the application, and what passed [ indoor neglect ] on the 3rd was used as the test piece (the oil coating weight 200 ~ 300 mg/dm<sup>2</sup>), this test piece was made to flood with sample offering liquid at a room temperature for 2 minutes -- back -- drying -- a weight method -- survival -- an oil content -- the amount was measured 2 mg/dm<sup>2</sup> equivalent to trichloroethane The following was made good [ a degreasing detergency ].

Residual oil quantity 2 mg/dm<sup>2</sup> Above x residual oil quantity 2 mg/dm<sup>2</sup> Following O [0010]  
[Table 1] Table -1 . Corrosion Degreasing No. The solvent constituent for washing Situation  
Detergency 1 nPB (99.5)/nitromethane (0.5) O O 2 IPB(99) / nitromethane (1) O O 3 1 nPB  
(95)/2 Dimethoxyethane (5) O O 4 IPB(97) / EPIKUROHI drine compounds (3) O O 5 nPB(95) /  
diisopropylamine (5) O O 6 IPB(97) / nitromethane (2) / phenol (1) O O 7 nPB(97) /  
nitromethane (2) / triethanolamine (1) O O 8 IPB(97) / nitromethane (2) / methylbutynol (1) O O  
9 IPB(97) / nitromethane (2) / benzotriazol (1) O O 10 1 nPB(97) / nitromethane (2) / 2  
Dimethoxyethane (1) O O 11 IPB(97) / nitromethane (2) / diisopropylamine (1) O O 13  
O<BR><SCRIPT LANGUAGE="JavaScript" TYPE="text/javascript"> nPB (100) x O14 IPB (100)

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○ 変化なし  
× 感量あり  
得られた結果を、比較例の結果とともに表-1に示す。  
得、表、n-プロピルプロマイドは、nPB、イソ  
ロピルプロマイドは、IPBで示し、かつ配合量を（  
）内に重量比として示した。  
【0009】また脱脂洗淨力を以下の方法で測定した。  
脱脂洗淨力試験  
予じめ精冷したSPCC軟鋼板（50×100×0.3mm）  
a) にプレス油（商品名日本工作油#640）を塗布。  
室内放置3日経過したものを試験片とした（油付着量2  
00～300mg/dm<sup>2</sup>）。この試験片を供試液に、室温  
で2分浸漬させた後乾燥し、重量法により残存油分量を  
測定した。トリクロエタンと同等の2mg/dm<sup>2</sup>以下を  
脱脂洗淨力良好とした。  
残存油分量 2mg/dm<sup>2</sup> 以上 ×  
残存油分量 2mg/dm<sup>2</sup> 以下 ○  
【0010】  
【表1】  
表-1

No.	洗淨用脱脂組成物	腐食	脱脂
		状態	洗淨力
1	nPB(99.5)/ニトロメタン(0.5)	○	○
2	IPB(99)/ニトロメタン(1)	○	○
3	nPB(95)/1,2 ジメトキシエタン(5)	○	○
4	IPB(97)/エビクロヒドリン(3)	○	○
5	nPB(95)/ジソプロピルアミン(5)	○	○
6	IPB(97)/ニトロメタン(2)/フェノール(1)	○	○
7	nPB(97)/ニトロメタン(2)/トリエタノールアミン(1)	○	○
8	IPB(97)/ニトロメタン(2)/メチルブチノール(1)	○	○
9	IPB(97)/ニトロメタン(2)/ベンゾトリアノール(1)	○	○
10	nPB(97)/ニトロメタン(2)/1,2 ジメトキシエタン(1)	○	○
11	IPB(97)/ニトロメタン(2)/ジソプロピルアミン(1)	○	○
13	nPB(100)	×	○
14	IPB(100)	×	○

フロントページの続き

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